

# The Cary Arboretum



of The New York Botanical Garden

A Newsletter published for Friends of the Arboretum  
by the Public Affairs Department.

September - October 1977

Box AB  
Millbrook, N.Y. 12545

Volume III, Number 5

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## Summer Youth Program Trains 30

Thirty young people worked at the Arboretum this summer under two Federally-assisted summer employment programs for youth.

Twelve youngsters, enrolled in the SPEDY program (Summer Program for Economically Disadvantaged Youth), worked up to thirty hours a week on a variety of assignments. Five were assigned to the greenhouse and nursery area where they learned plant care techniques; two assisted in tree and grounds maintenance; three helped with general maintenance duties such as painting and stacking firewood; and two were assistants at the Arboretum's education center.

Each Friday during the nine-week program the young people working at the Arboretum joined with other SPEDY enrollees from the Millbrook schools, the Farm and Home Center and Dutchess Infirmary in educational classes conducted by the Arboretum. At these sessions the SPEDY group were introduced to many aspects of Arboretum activities including horticulture,

botanical research, measurement of air and water pollution, maintenance of small engines, identification of wild flowers and wildlife management. Participants came from Millbrook, Verbank, Dover, Pleasant Valley and Poughkeepsie.

An additional 18 young people enrolled in two Youth Conservation Corps crews performed other tasks and enjoyed learning experiences at the Arboretum. Each crew consisted of eight workers ages 14 to 19, and a supervisor.

One crew thinned out the trees in a large overcrowded hemlock plantation. Later, they carried out cutting operations to improve an extensive tract of second-growth hardwoods which the Arboretum intends to operate as a woodlot to fuel its wood-burning furnaces.

The second crew worked on projects related to wildlife management, including studies of small mammal population and control methods.

The YCC program, open to all youths regardless of family income, ran for six weeks. It was sponsored by Dutchess County, supervised by the Youth Board, and funded by the Federal government through the State Department of Environmental Conservation.

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## Cary Arboretum Opens Library to Public

The Library of the Cary Arboretum is now open to the general public one day a week, and to Friends of the Arboretum on two additional days.

The reference collection is available for use in the Library without appointment every Wednesday from 10:00 a.m. to 12 noon and from 1:00 p.m. to 4:00 p.m. Visitors will be assisted by Fred Strum, Arboretum librarian.

In addition to the hours for the general public, the Library will also be open, by appointment, on Mondays and Tuesdays for members of the Friends of the Cary Arboretum. A duplicate of the Cary Arboretum Library card catalogue is available in the Millbrook Public Library.

The Cary Library is temporarily located in a converted farmhouse on Fowler Road, Millbrook, which also houses the education and wildlife offices of the Arboretum. Upon completion of the new Plant Science Building on the Sharon Turnpike, the Library will move to its much larger, permanent quarters there. It is hoped that eventually the hours for public use can be expanded.

The Cary Arboretum Library now consists of 5,000 volumes, 261 periodicals, and five vertical files containing over 3,300 items, such as clippings, pamphlets, etc. The Library embraces general reference material on botany, with special emphasis on woody plants. It also is accumulating an important collection of books on environmental problems. Another growing

part of the Library's collection is literature on alternative energy sources: biofuel, methanol, solar energy, wind, and wood power.

Further information on Library hours and resources may be obtained by calling Mr. Strum at 677-5348.

# Dividing Perennials

by

Paul E. Mihan, Plant Propagator

Attention, all gardeners! Divide your perennial plants — it's good for your pocketbook and healthy for your plants!

The multiplication of plants without the use of seed is called asexual or vegetative propagation. Though there are many methods of vegetative propagation, the most common are simple division, ground layering, cuttings, and grafting.

Besides being the simplest and quickest way to increase plants, division is necessary every three to four years to insure continued vigorous and healthy growth of perennial plants. Most garden perennials which are grown in this area easily lend themselves to division, including even such fleshy rooted subjects as the peony. The best time to divide perennials is in the early Spring just prior to blooming or during early September after blooming is finished. I am partial to the latter time, because of the cooler temperatures the plant will be exposed to in the Fall.

*Apropos of this, a good general horticultural rule to remember is never to disturb a plant while it is blooming!* Visual observation of a plant will usually tell you if division should be attempted. Look for a plant that grows in a "clump" fashion. Such plants will have many stems, each of which will have its own root system. It is these "clump" plants which

need dividing.

Cut all foliage off, down to within three inches to four inches of the ground. Lift or dig the plant out of the ground and tear or cut the root system in half. Tearing or pulling the clump apart is generally better than chopping with a spade or axe. However, in the case of perennial phlox and similar clumps, if one clean cut can be made with a sharp spade, it is perfectly acceptable to divide a plant in this manner.

Reducing the foliage (also commonly referred to as the shoot system) helps to keep the plant in line with its root system. There is a balance between the root system which supplies water and the shoot system which utilizes the water. The action of digging and dividing the clump obviously has reduced the plant's ability to supply water, and, in order to compensate for this loss, the top growth should also be reduced. In this way, the plant's demand for water is reduced, and a balance is maintained. The resulting clumps should then be transplanted with adequate mulch and sufficient watering.

Some of the more common perennials which are easily divided in the early Fall are: chrysanthemum, ferns, *Astilbe* (garden spirea), *Digitalis* (foxglove), *Hemerocallis* (day lily), *Hosta* (plantain

lily), *Aquilegia* (columbine), *Heuchera sanguinea* (coral bells), bearded iris, lupine, oriental poppy, *Phlox paniculata* (summer phlox), *Primula vulgaris* (English primrose), *Rudbeckia* (coneflower), and violet. Plants with specialized root systems like the peony should be cut so as to provide several "eyes" or growth buds. Delphiniums and dahlias also have "eyes", and care must be taken to insure that each piece of root system has bud-bearing "eyes" or growth points. These are similar to the "eyes" or buds on a potato. Naturalized bulbs such as daffodils also can benefit from division, because new bulbs crowd each other for available space.

## Around the Arboretum

### Weed Day

The biggest human effort in the cultivation of plants is the control of weeds. In an effort to dispense information on this important subject, the Cary Arboretum and the Dutchess County Cooperative Extension Association recently joined forces to sponsor Weed Day 1977. Staff members of the Cary Arboretum, Cooperative Extension agents, and researchers from Cornell University discussed weed control in ornamental plants on July 7 to an invited audience of more than 100 nurserymen, garden center operators, grounds superintendents, and landscape maintenance personnel.

Demonstration plots were started in mid-May in the Arboretum nursery. Plants were selected as representatives of different tolerances to chemical weed control. These included maple, yew, forsythia, privet, andromeda, conifer, sedum, pachysandra, and vinca. Two weeks after planting, the soil was tilled and controls applied to the various plots. Seven plots received pre-emergent chemical weed controls, one plot received woodchips over black plastic, one plot received woodchips only, and the remaining plot received only hand-hoeing. Included in these demonstration areas were control plots, which showed the general array of weed growth without any type of treatments. Except in the hand-hoed plot, no weed was removed. The audience compared the progress of the plots for the amount and type of weed growth. In general, plots with chemical weed treatments showed a better control of weeds than did the plots with cultural



treatment.

The participants ended the day with a tour of the Arboretum. Stops along the route included areas which have been cleared of undesirable growth through the selective use of cultural and chemical techniques.

*Alex Pearl, Nursery manager at Cary Arboretum, explains techniques of weed control to professional visitors on Weed Day, July 7.*

*photo by Gary Griffen*



*An ant seeks food from nectary on the flower bud of a trumpet vine.*

### NSF Grant For Elias

Dr. Thomas S. Elias has received a two-year \$28,100 grant from the National Science Foundation in Washington, D.C., to study aspects of the mutually beneficial relationships which exist between plants and certain insects. More specifically, he will study those plants which possess nectaries (sugar secreting organs) to attract ants to the stems, leaves, flowers, and fruits. The ants will protect that food source and in turn offer varying degrees of protection to the plant from leaf-eating insects.

Previously, these relationships were thought to exist only in tropical and subtropical regions of the world; however, Dr. Elias' research has recently shown that the ant-plant associations also function in temperate climates. His work on the trumpet vine, a woody vine of the eastern United States, demonstrates how ants and plants live together for the mutual benefit of both organisms.

### Wood Boilers

The Arboretum is installing two wood-fired steel boilers as an additional way of reducing its dependence on non-renewable petroleum resources. The boilers will be used to heat two groups of older buildings on the Arboretum grounds. Each boiler rated at 350,000 BTU can handle logs in the firebox of up to 16 inches in diameter and 38 inches long, though customarily smaller logs will be used.

Because of the design of the firebox, each boiler can operate about 14 hours in the coldest weather before requiring another load of wood. Firewood is a natural by-product of the work that Arboretum grounds crews do to prepare the grounds to receive the collection of trees that has been cultivated in the greenhouse-nursery area. It is estimated that the cost of the boilers and related installation will be recouped in about four years by means of fuel savings.

### Nine CETA Trainees at Cary

The Arboretum has received a grant of \$86,000 under the Federally sponsored Comprehensive Employment and Training Act program (CETA). This will provide jobs and necessary materials in the horticulture department for nine persons

who are unskilled and will receive training for one year under Arboretum auspices. Their training will be in the fields of greenhouse and nursery management, grounds maintenance and surveying.

### Librarians Tour Arboretum

Despite a pouring rain, more than 100 librarians, attending the June convention of the Special Libraries Association in New York City, spent a day touring the Cary Arboretum. They came at the invitation of New York Botanical Garden library administrator Bob Long. The tour featured the Arboretum greenhouses and the soon-to-be-completed environmentally designed Plant Science Building. Fred Strum, the Arboretum reference librarian, showed the visitors the area where the future home of the Arboretum Library will be located in the innovative building, and explained the unusual features that this highly specialized library will contain.



*Dan Brown, coordinator of capital projects, gestures through section of framing to explain Plant Science Building to Special Libraries Association visitors, June 9.*

*photo by Gary Griffen*

### Goodland in Brazil and Surinam

Dr. Robert Goodland, whose environmental assessment studies have taken him to all points of the globe, recently returned from two professional visits: to northeastern Brazil and to Surinam, the former Dutch territory on the northwest coast of South America.

The Brazilian visit was one of a series that Dr. Goodland has agreed to make to advise Eletronorte, the Brazilian electric power authority, on environmental aspects of the huge Tucuruí hydroelectric development on the Tocantins River. The dam now under construction there is the first to be built on a tributary of the Amazon river and will be the largest dam in Brazil. The long-term project is expected to be completed by 1982. Dr. Goodland's advice involves watershed management, Amerindians, water-borne disease, resettlement and relocation of villages, multiple use including fishery development, transmission corridor clearance, and management of forest to be flooded by the huge river impoundment.

In Surinam, Dr. Goodland advised governmental agencies on the adequacy of the guidelines they are currently using to plan a decade of economic development.

Costs of both trips were covered by contracts between the Cary Arboretum and the sponsoring agencies in each country.

### Two Papers by Karnosky

Dr. David Karnosky, the Arboretum's plant geneticist, presented two papers at scientific meetings during the past few weeks. At the 25th Northeastern Forest Tree Improvement Conference, held at the University of Maine, he discussed *in vitro* methods for the culture of American elm anthers (pollen sacs). At a meeting in Philadelphia of the International Society of Arboriculture, Dr. Karnosky presented a program for testing the air pollution tolerances of commonly planted shade tree cultivars. This paper covered the relative sulfur dioxide and ozone tolerances of such types of trees as maple, beech, ash, ginkgo, locust, sycamore, and oak.

The papers were outgrowths of two research projects Dr. Karnosky is conducting at present. One is an effort to develop a disease resistant strain of elm tree; the other is a search for varieties of trees best suited to withstand urban pollution.

### Soviet Botanists at Arboretum

Elated but weary from three weeks of strenuous travel and plant-collecting in the Rocky Mountains, three Soviet botanists enjoyed two days of relaxation at the Cary Arboretum August 18-19 before returning home.

The Russian visitors were in this country under a scientific exchange program. Their trip had been planned by the Arboretum's assistant director Dr. Thomas S. Elias, who also helped guide them through the Far West. Last year Dr. Elias arranged a similar visit in the eastern United States for another group of Soviet botanists, and then flew to the Soviet Union for a collecting trip in the Caucasus mountains.

This year, the visitors' principal American guide was Arboretum horticulturist

*(continued on page 4)*

# Payne Gives Views on Tax Exemption

In early June the Assessors of the Town of Washington, where most of the Cary Arboretum property is located, notified the Arboretum that they had decided to revoke the real estate tax exemption that has hitherto applied to the property. The Arboretum filed a complaint and supporting material protesting this action on Grievance Day. The complaint was reviewed by the Board of Assessment Review, which subsequently upheld the action of the Assessors.

The Director of the Arboretum, Dr. Willard W. Payne, recently wrote a letter to the Editor of the "Millbrook Round Table" expressing his reaction to these developments. The text of Dr. Payne's letter follows:

Dear Sir:

As Director of the Cary Arboretum, I would like to comment on the recent decision of the Assessors of the Town of Washington, upheld by the Board of Assessment Review, that the lands of the Arboretum are not entitled to exemption from real estate taxation. We strongly disagree with this decision, and, in view of the amount of potential tax liability which is involved, have no choice but to contest it. We have instructed our attorneys to take steps to do so.

Although I regret that we have not yet been able to reach agreement with the Assessors, I would like to emphasize that the taxation controversy will not cause the Arboretum or its staff to diminish our efforts to be good citizens of the Town and of the surrounding areas. Thus, to the extent that we are able to do so, we will continue to make freely available to the public information obtained from our studies of the forests, plantations, and meadows of the Arboretum which is applicable to management of woodlands, orchards, gardens, and grasslands through-

out the region, to assist in beautification of the Village of Millbrook, and to serve as consultants to towns in the area for improved use of trees in urban settings. We will continue to offer courses to the public on many aspects of natural science, to explain useful phases of horticultural and experimental work being carried out here, and to provide tours of our buildings and grounds. Public interest in and enthusiasm for our programs is evidenced by the fact that approximately 450 people from the area have joined us as "Friends of the Arboretum." In addition, many devoted volunteers contribute large amounts of time to our programs. Without their help we could not maintain activity at its current level.

The contribution of the Arboretum to the local economy has been very considerable, and we hope it will continue to be so. Our payroll this year will be more than \$750,000 for a staff of about 60 employees, most of whom live in the immediate vicinity of the Arboretum. We will spend more than \$100,000 in this Township for supplies, materials, and services. During the construction of the new solar-heated Plant Science Building on the Sharon Turnpike, approximately \$415,000 in subcontracts have been placed with local firms. Other capital projects, including renovation of the lovely Gifford House as our Education Center, have added to this figure substantially.

Taking up the reins as Director of the Cary Arboretum, I do so convinced that our best interests run parallel to those of the community of which we are a part. As the collections, plantings, and programs of study develop in the years to come, we will grow in importance to society at large and to the area. Just as we are pleased and proud to be here, we hope you are pleased and proud to have us, and that we will be able to work together to maintain Millbrook and its environs as a place of exceptional

beauty, gracefulness and intellectual satisfaction.

Willard W. Payne  
Director

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## Around the Arboretum

**Soviet Botanists at Arboretum**  
*(continued from page 3)*

Robert Hebb, who left for a reciprocal scientific trip to the U.S.S.R. a few days after the departure of the Soviet group. Hebb will tour large sections of the Asian portions of the Soviet Union, including one stop a few miles from the Chinese border.

While the Soviets were in the American West, copies were received at the Arboretum of the Russian-language magazine "Amerika" published by the U.S. Information Agency and distributed in the Soviet Union. The latest issue features a photo-article on last year's visit of the Soviet botanists, photographs of Dr. Elias leading his guests across a wooded ravine in the Great Smokies and resting by a lake in the Adirondacks.

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of  
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